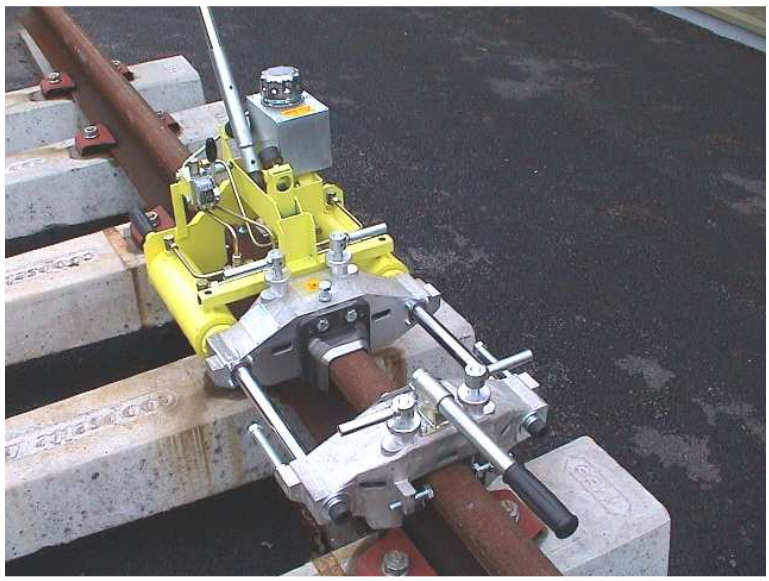
RAILTECH
INTERNATIONAL
GROUPE DELACHAUX

WIDE HYDRAULIC RAIL WELD SHEARING MACHINE EPM3 INTEGRAL TYPE WITH HAND PUMP

REF. 11334008



OPERATING AND MAINTENANCE MANUAL

REVISION 00

EDITION 02-2007

RAILTECH INTERNATIONAL
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GROUPE DELACHAUX

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I – SAFETY LABELS EXPLANATION

WARNING ! The machine can be dangerous. Careless and incorrect use can result in injury to the operator

Read carefully the instructions of the operating manual and make sure you understand them before using the machine**.**

WARNING ! Be carefull to the mobile pieces of the shearing machine so as to avoid any risk of squashing

II – GENERAL SAFETY INSTRUCTIONS

* Do not use the shearing machine until you have read and understood the entire contents of the operator's manual

* The shearing machine is specially designed to cut off the metal excess, or deadhead, generated by rail aluminthermic welding, never use this machine for any other work

* Never use the shearing machine when you are tired, under the influence of medicines, alcohol or any substance that can affect your perception, dexterity or your appreciation capacity

* Do not mix different types of oil.

III - SAFETY MEASURES TO BE TAKEN PRIOR TO INITIAL USE

* Chek that all hydraulic pipes are correctly positioned so as to avoid their shearing or a contact with the weld

* To obtain high performances and get most satisfaction with the shearing machine, realise the different adjustments recommended with a particular attention before starting the machine

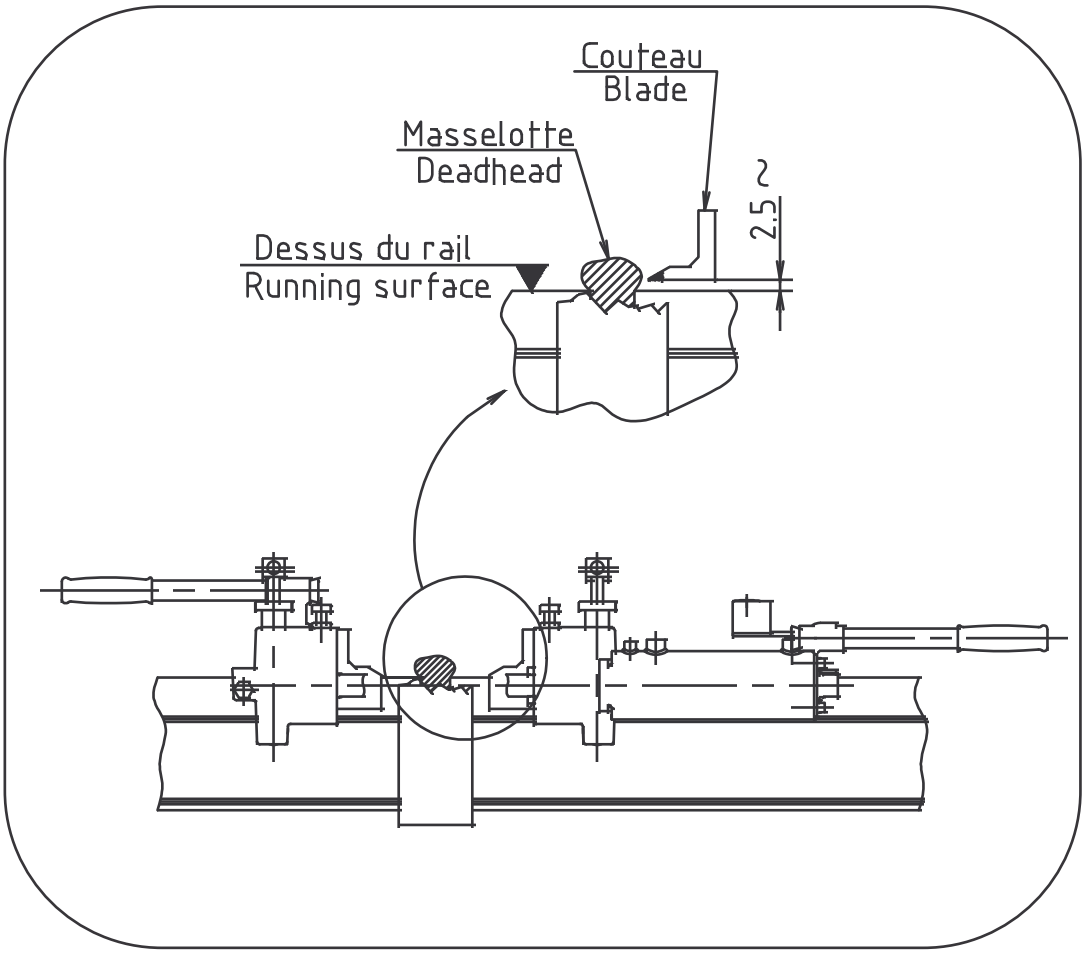
IV - PRINCIPLE

During aluminothermic welding, a deadhead which serves of metal reserve during solidification remains above the rail head.

Traditionally this deadhead was removed manually with a hammer and chisel, hard work which exposed the workers to projections of metal. The hydraulic shearing machine allows to cut the metal excess without any risk of damaging the rail.

After mould release, 2 hydraulically operated blades, guided by the rail itself, move and cut off the deadhead. This machine is lightweight and can easily be manipulated by two men.

A set of blades adapted to the various types of Vignole rails allows the cutting in a single operation with precision.



V - ADJUSTMENTS BEFORE STARTING THE MACHINE

1) ADJUSTING THE BLADES

a) Longitudinal guide

The cutting unit is guided longitudinally along the rail by 4 guide screws (rep. **D** and **E**) : 2 on the front crosspiece and 2 on the back one, which create a space between the cutting edge of the blade and the profile of the rail head.

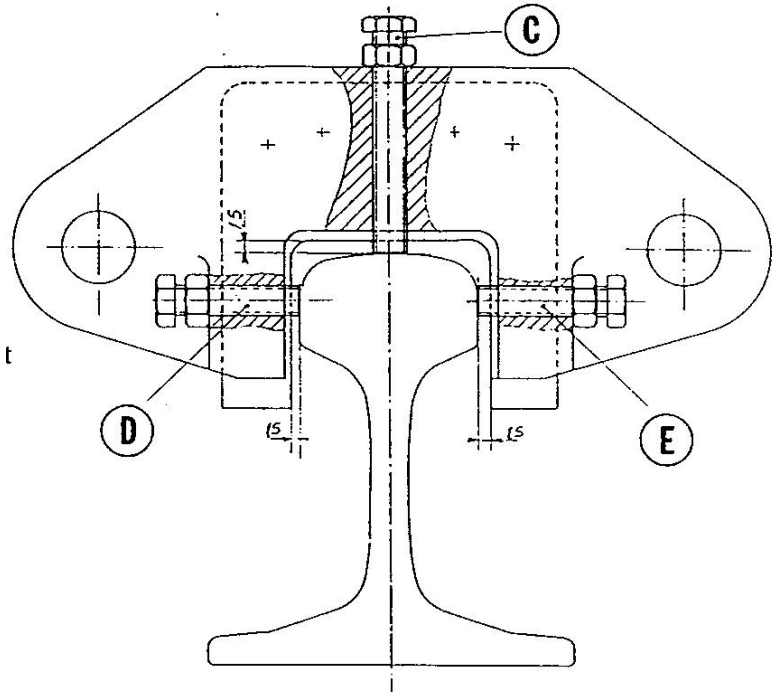
Instructions

- Unlock the lock nuts and unscrew the rep. **D** and **E** screws

- On the left side, adjust the screw rep. **D** so as to obtain a space of 1.5 mm between the vertical cutting edge of the blade and the rail

- On the right side, tighten the screw rep. **E** so as to leave a space of 0.5 to 1 mm between this screw extremity and the rail

- Lock up the lock nuts



b) Vertical adjustment

The front and back crosspieces are each fitted with a screw (rep. **C**)

These screws are adjusted in the workshop so that there is a space of 1,5 to 2 mm between the cutting edge of the blades and the rail running surface

Instructions

- Loosen the lock nuts and unscrew the 2 screws rep. **C**
- Place a 1.5mm wedge on the rail running surface
- Place the cutting unit on the wedge
- Tighten the screws rep. **C** until they make contact.with the rail
- Block the lock nuts

To optimise the cutting, this adjustment should be made systematically every time the blades have been sharpened or replaced.

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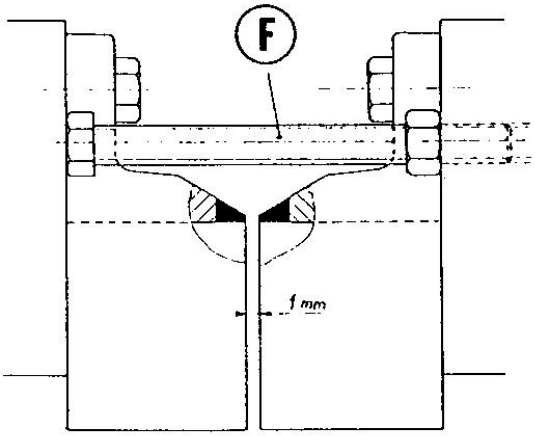
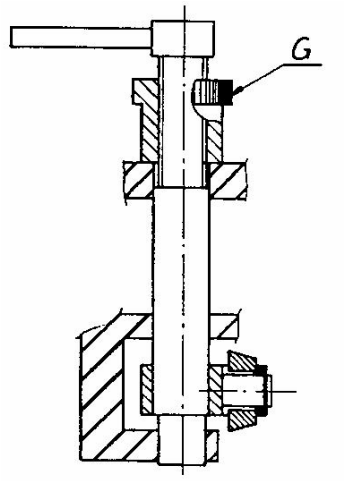
2) STOPS ADJUSTMENTS



To provide the blades cutting edges from damaging, it's absolutely necessary to leave a space of 1 mm when adjusting the 2 screws rep. **F** witch act like stop pieces on the travelling crosspiece.

3 - ADJUSTING THE LOCKING SYSTEM

The locking system improves the cutting action, making it safe and of good quality.



Instructions

The shearing unit placed on the rail, the blades adjusted, rotate the bolt lever through 90° so as to engage the bolt under the rail head,

- Turn the knurled nut (rep. **G**) until the bolt make contact.under the rail head

- Loosen 1/8 of a turn the nut (rep. **G**) to create un little space

- Do the same with the three other bolts

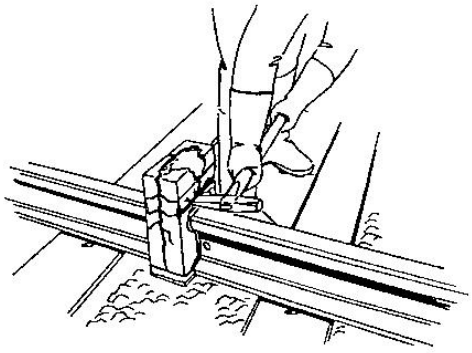
VI - HOW TO OPERATE THE MACHINE

Before welding operation, put the shearing unit on the rail so as to verify that all the adjustments have been made (see section III, Adjustments).

1 - MOULD RELEASE

The welding finished, proceed as follows :

- Break the upper part of the mould respecting the time required between casting and mould release, according to the welding process.



- Remove the sand from each side of the deadhead.

- Using a wire brush remove sand and debris resulting from the mould from both sides of the deadhead.

These operations must be done quickly, otherwise the deadhead may cool down too much and become impossible to cut.

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2) - CUTTING

- The welder and his assistant place the shearing machine on the rail with the deadhead centered in relation to the blades.

- Pivot the 4 bolts of the locking system under the rail head

- The operator, on the hydraulic distributor side, pushes the lever towards the welding to cut (towards himself for the return).
Quickly manipulates the small lever from right to left to activate the pump. As soon as the tensile becomes important sets up the big lever and carries on acting the pump until the stop screws make contact.
Then reverses immédiately the distributor lever in order to prevent a prolonged heating of blades and pump for their return.

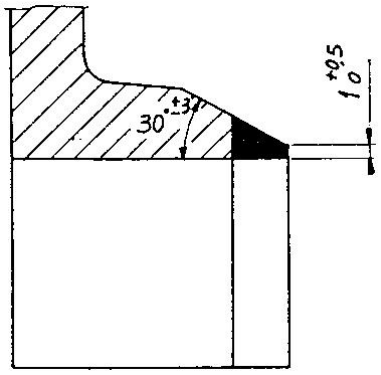
- Release the bolts of the locking system.

- Remove the shearing machine from the rail.

- Using a hammer break the layer that still links the deadhead to the rail.

VII - B L A D E S

1) - SHARPENING

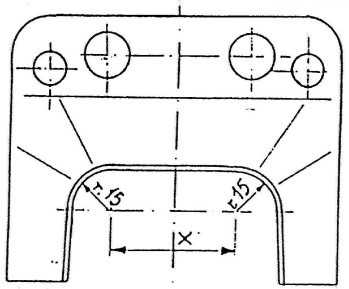


The shape of the cutting edge along all the profile of the blade is very important in order to obtain optimum cutting quality.

The blades must be systematically inspected and sharpened (about every 50 cuts).

PROFILE BLADES LIST FOR THE VARIOUS TYPES OF VIGNOLE RAILS

Lenghtened Blades 32 type **Standard 11335018** **H.T. 11335032**	Lenghtened Blades 36 type **Standard 11335019** **H.T. 11335033**	Lenghtened Blades 40 type **Standard 11335024** **H.T. 11335034**		Lenghtened Blades 45 type **standard 11335022** **H.T. 11335028**		Lenghtened Blades 48 type **Standard 11335023** **H.T. 11335035**
20 Kg Std.	34 Kg PLMA	31 Kg Australie		41 Kg R41		41,2 Kg Type 16
25 Kg	65 Lb ASCE	70 Lb U.P	48 Kg LP	SJ 41	CFF4	45 Kg AL 16A
50 Lb NSFB	70 Lb ASCE Thaïlande	36 Kg Anglais	100 Lb HF	42,1 Kg R14	CFF4 TJD	50 Kg EB
Ouganda	36 Kg UST	37,2 Kg Anglais	50 Kg N	ou R42	S54	105 Lb NYC
50 Lb OBS	36 Kg UST Suisse	75 Lb ASCE	50 Kg Nelle Zélande	SJ 43	UIC 54 - U78	CFF6
Ouganda	36 Kg CFF5	80 Lb ASCE	50 Kg U 50	R 43	UIC 54 A (A65)	R 65
26 Kg Std.	UNI 36	Mozambique	UNI 50	91 Lb RR	UIC 54 HM	UIC 60
26 Kg renforcé	37,8 Kg AL 11A	80 Lb BSA	100 Lb PS	45 Kg ED	110 Lb CF & I	UIC 60 HH
29 Kg	75 Lb RBS Ouganda	80 Lb BSA	100 Lb RB	45 Kg Danemark	110 Lb RE	60 Kg EB
BS 60 AFB Anglais	39 Kg ARAB	Sierra Léone	52 Kg Metro	90 RBS	112 LB RE	UIC 61
30 Kg Std.	39 Kg PMA	80 Lb OBS Ouganda	U 60	90 Lb ASCE	113 A	122 BC & O
30 Kg Nord	40 Kg Nord	80 Lb RBS	U 60 CA	Mozambique	113 Lb HF	122 Lb
30 Kg Suisse	40 Kg type Am.	41 Kg Australie	60 Kg N	90 Lb BSA	115 Lb RE	63 Kg EB
31,6 Kg	85 CF & I	85 Lb ASCE	U 59	47 Kg Australie	119 Lb CF & I	127 Lb
33,4 Kg Prussien	85 ARAA	85 Lb PS		S 49	60 Kg Australie HH	127 Lb NYC
36 Kg Portugal	45 Kg Nord	45 Kg MSA		50 Kg Chine	60 Kg Australie	130 Lb PS
36 Kg S13	45 Kg Est	90.20 ARAA Brésil		50 Kg Australie	119 Lb	131 Lb RE
36 Kg S40 Std.	45,5 EV45	90.30 ARAB		SJ 50	62 Kg S52	130 Lb RE
24 a	46 Kg S12	90 Lb GN		UIC 50	130 Lb HF	66 Kg Australie
	U 33 Ame épaisse	90 Lb RA		100 Lb AREA		132 LB HH
	U 33 ou S33	90 Lb RB		100 Lb ASCE		132 Lb RE
	U 55	90 Lb SF		100 Lb ARAB		133 Lb RE
	10 a	90 Lb CF & I		100 Lb RA		68 Kg Australie
		91 Lb Nelle. Zélande		100 Lb RE		136 Lb CF & I
		CFF1		100 Lb CF & I		136 Lb HH
		CFF1 TJD		53 Kg Australie		136 Lb RE
		UNI 46		ou 107 Lb Australie		140 Lb RE
		47 Kg Australie		CFF3 (UIC 54E)		A 74
						UIC 71
						155 Lb PS
						155 Lb Penna



Cote x : 32-36-40-45-48

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BLADES FOR SHEARING MACHINE

01/04/2004

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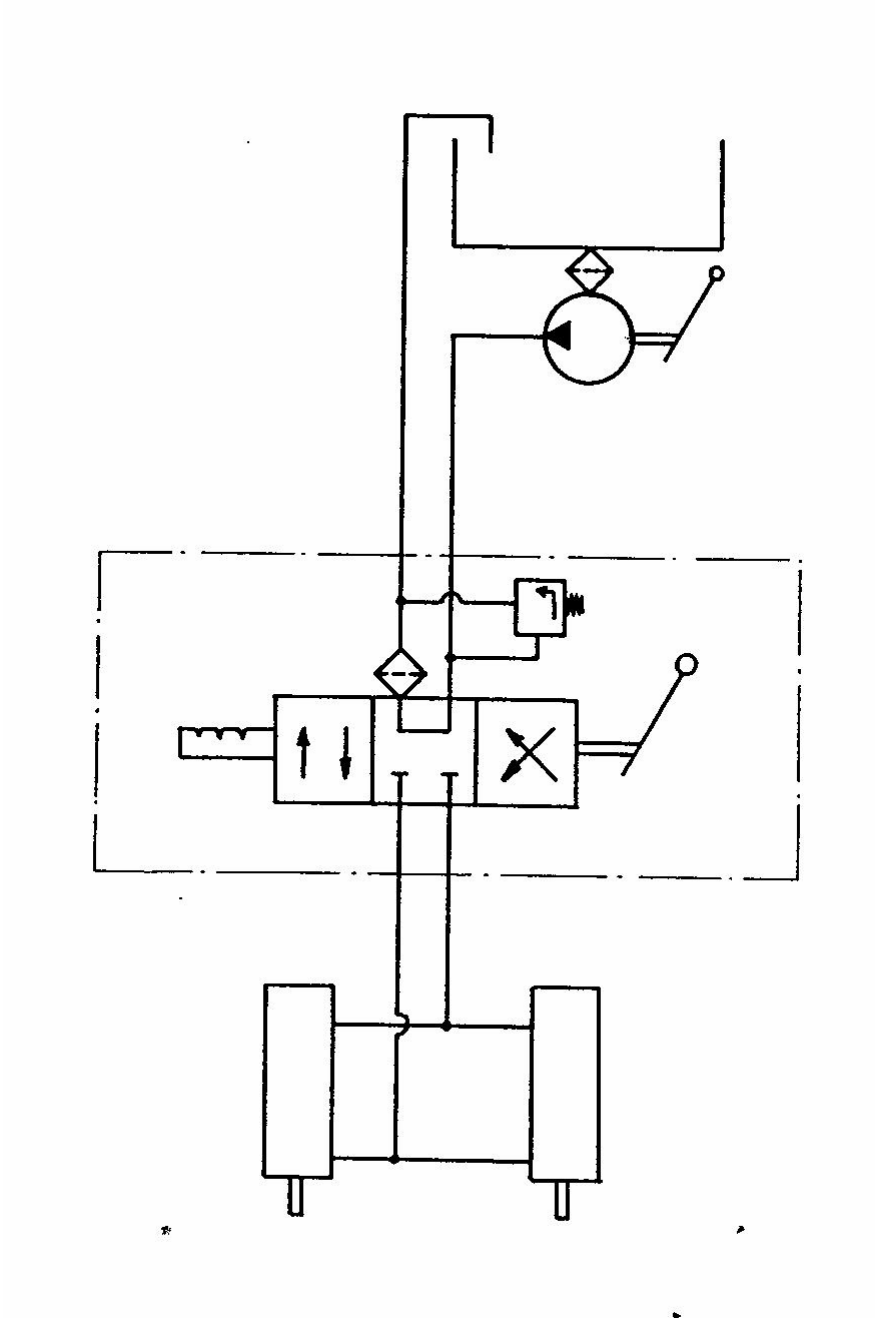
VIII - HYDRAULIC DIAGRAM



IX - TECHNICAL SPECIFICATIONS

Désignation	Single unit with manual pump
Weight	56 kg without blades
Dimensions	L x W x H 1020 x 500 x 480

Force	216 KN (22 T)		
Hydraulic pressure	250 bar (3626 psi)		
Hydraulic oil	ISO 22 VG	Viscosity	2,3 Engler at 50°C
	Viscosity index	100	
	Flash point	192°C	

DO NOT MIX DIFFERENT TYPES OF OIL

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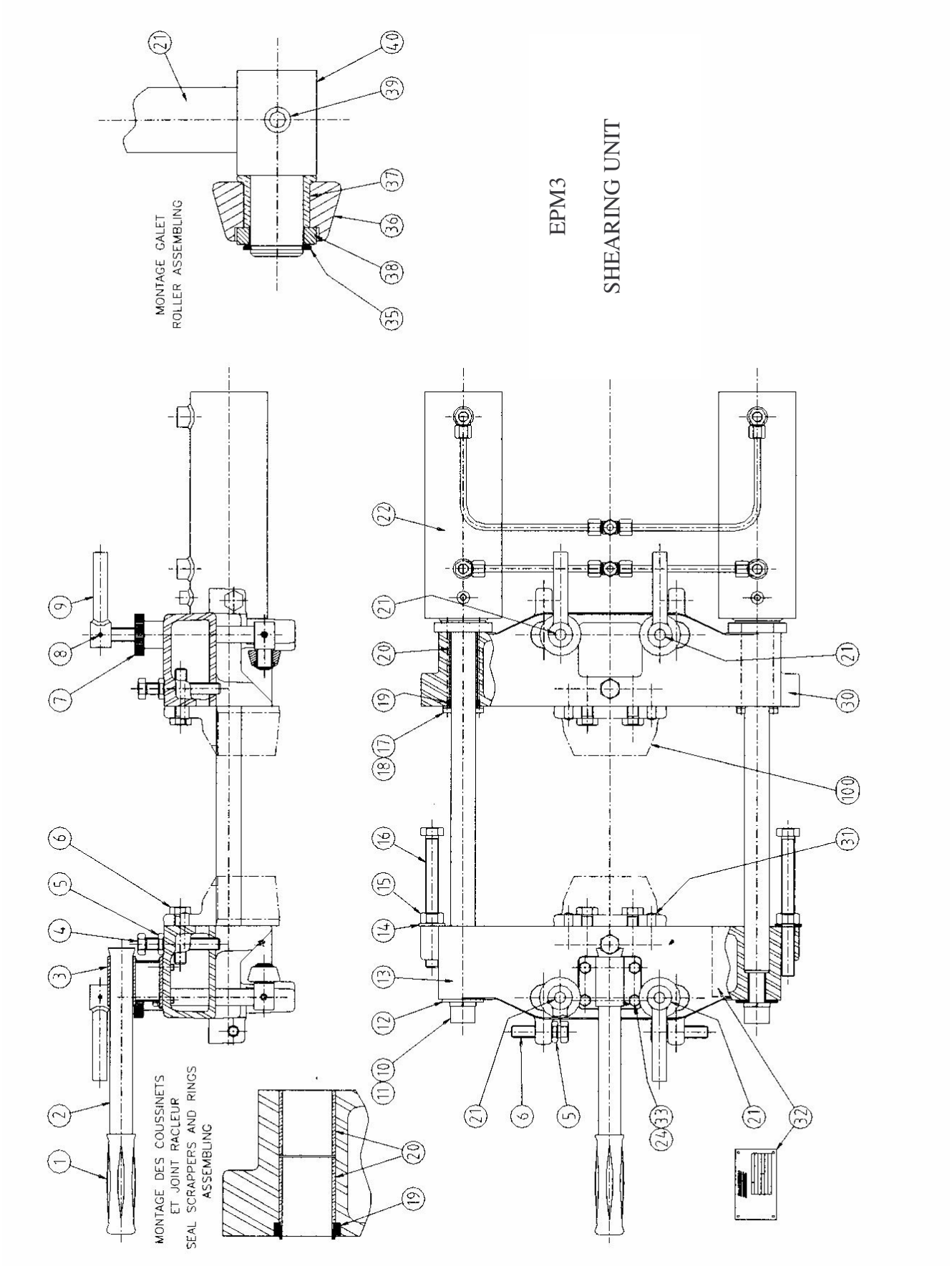
XI - SPARE PARTS LIST

Shearing unit

Pump support crosspiece suit

Hydraulical fitting


EPM3
SHEARING UNIT
MONTAGE GALET
ROLLER ASSEMBLING
MONTAGE DES COUSSINETS
ET JOINT RACLEUR
SEAL SCRAPPERS AND RINGS
ASSEMBLING

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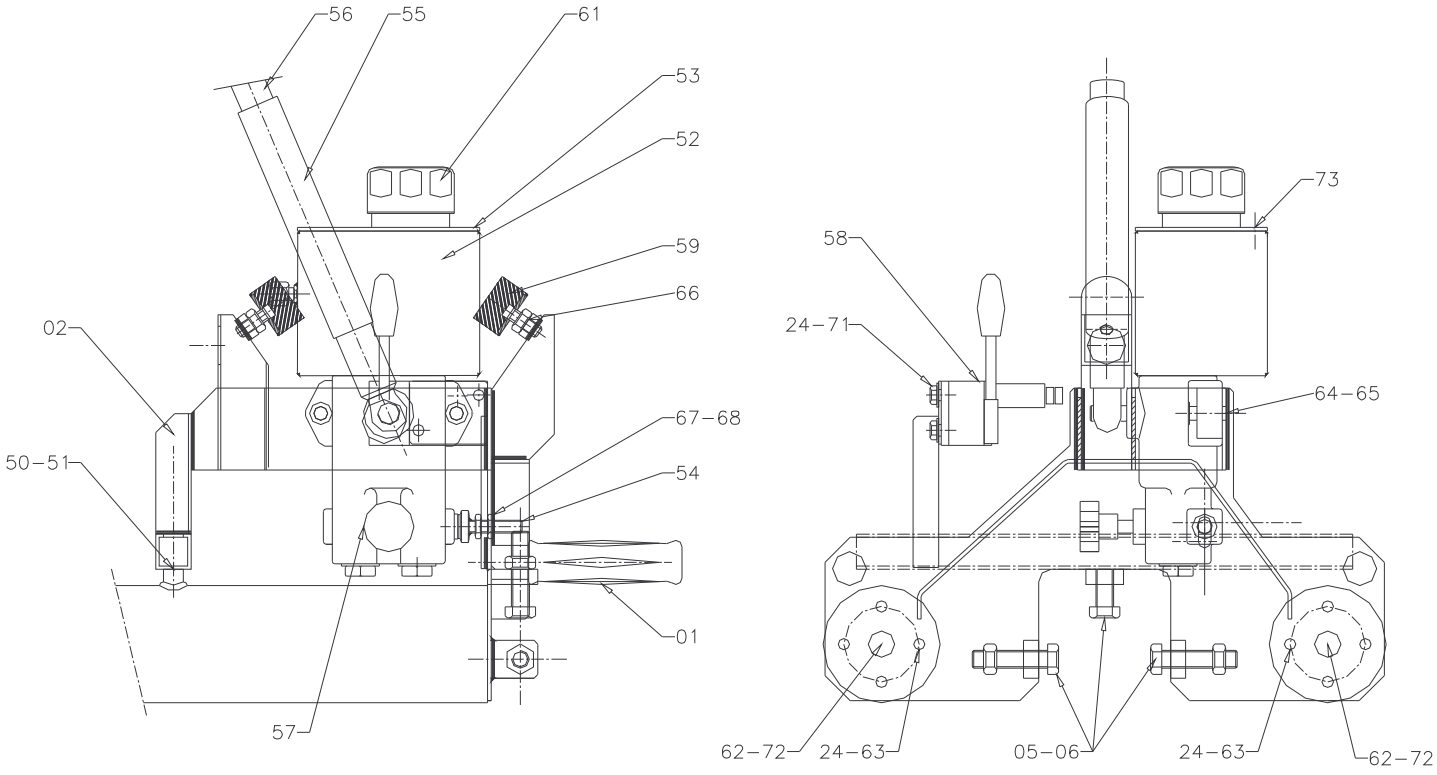
SHEARING UNIT

Item	Reference	Qty	Description
1	47401002	1	Rubber handle
2	33210001	1	Holding handle
3	35910146	1	Handle support
4	41014002	2	HM14 x 60 screw
5	40914004	4	Hm M14 nut
6	41014001	6	H M14 x 90 screw
7	31230014	4	Adjusting nut
8	41301012	4	Elastic pin Mecanindus
9	35910052	4	Roller hook handle
10	41020001	2	CHC M20 x 80 screw
11	41120002	2	W20 washer
12	41120003	2	L20 U washer
13	32930045	1 set	Fixe crosspiece équiped with : - 2 cylindrical pins 10x30 (rep 31)
14	41116004	2	M16 N flat washer
15	40916001	2	H M16 screw
16	41016007	2	HM16 x 160 screw
17	41006049	8	CHc M6 x 100/24 screw
18	41106001	8	W6 washer
19	44201004	2	Scraper seals
20	45301005	4	Rings PCM 30x34x40
21	31110184	4	Operating rod
22	47501011	2	Light hydraulic jack
	47501003	2	Jack column
24	41108004	6	W8 washer
30	32930046	1 set	Mobile crosspiece équiped with : - 2 scraper seals (rep 19) - 4 rings PCM 30x34x40 (rep 20) - 2 cylindrical pins 10x30 (rep 31)
31	41304001	4	Cylindrical pin 10x30
32	42221010	1	Label
33	41008002	4	HM8 x 20 screw
35	41802001	4	Circlips for Ø 16 shaft
36	31210142	4	Roller
37	45302002	4	Bearing
38	31210143	4	Positionning ring
39	41301013	4	Elastic pin diameter 8
40	31910027	4	Roller axle
100		1p	Blades (refer to the list page 9)
	47501016	**1**	**Gasket kit for light hydraulic jack**

PUMP SUPPORT CROSSPIECE SUIT



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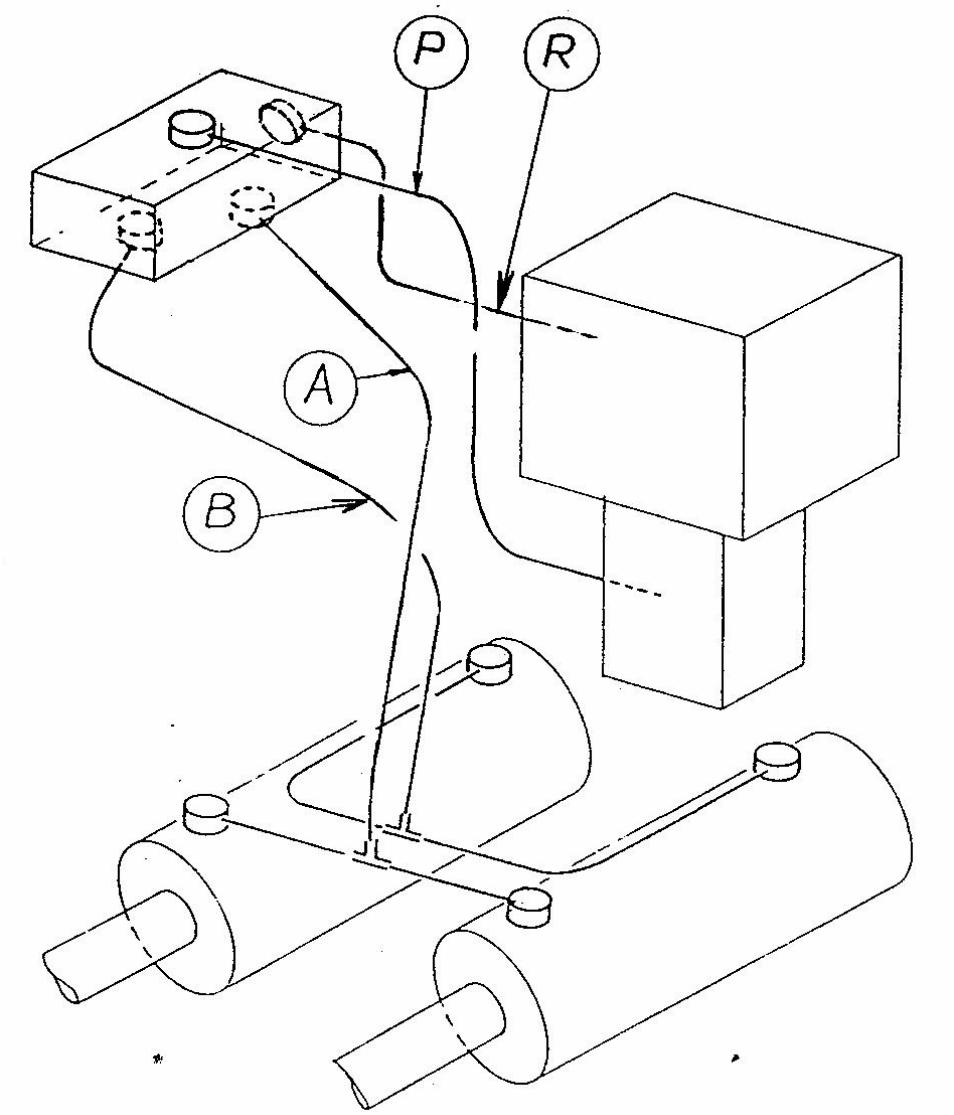
PUMP SUPPORT CROSSPIECE SUIT

Rep.	Référence	Qté.	Description
1	47401002	2	Rubber handle
2	35910355	1	Pump support
5	40914004	3	Hm M14 nut
6	41014001	3	HM 14 x 60 screw
24	41108004	10	W8 washer
50	41008052	2	Screw CHc M8 x 16
51	41108004	2	W8 washer
52	*35910054	1 set	Oil tank with cap (rep 53)
53	=> rep. 52	1	Tank cap
54	35910055	1	Stud
55	31910028	1	Pump lever
56	31210145	1	Long pump lever
57	39920001	1	Pump ATOS modified
58	47702005	1	Distributor with pressure relief valve
59	47340001	2	Shock -absorber
60	47701028	1	Oil filling piece
61	47701029	1	Exhaust Plug
62	41020002	2	CHC M20 x 50 screw
63	41008003	8	CHC M8 x 30 screw
65	41010017	2	CHc M10 x 50 screw
66	40910009	8	Nylstop M10 nut
67	40910003	2	Hm M10 nut
68	41110004	2	L10 N washer
71	41008008	2	HM 8 x 16 screw
72	41120004	2	M20 N washer
73	41004003	6	Sheet-Iron screw

=> parts belonging to the referenced system (*), they cannnot be sdold separately.

HYDRAULICAL FITTING



Rep.	*Reference*	*Qty.*
A+B	**21332018**	**1**
P+R	**21332019**	**1**
A+B+P+R	**21332012**	**1**

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FICHE DE CONTROLE
CLIENT

CONTROL CARD
CUSTOMER'S COPY

EBAVUREUSE HYDRAULIQUE TETE LARGE EPM3 A POMPE MANUELLE REF. 11334008

WIDE HYDRAULIC RAIL SHEARING MACHINE EPM3 WITH HAND PUMP REF. 11334008

N°	Désignation des contrôles *Description of controls*	Contrôle *Checked by*
1	Règlage des vis de positionnement en hauteur *Hight positionning screws adjustment*	
2	Règlage des vis de guidage *Guide screws adjustment*	
3	Système de verrouillage : *Locking system*	
	- Ecrou de règlage en hauteur *Hight adjustment nut*	
	- Débattement des verrous *Clearance of locks*	
4	Etanchéïté des constituants hydrauliques sous mise en pression : *Inspection of hydraulic components under pressure* - Raccords *Couplings* - Tuyauteries *Pipings* - Vérins *Hydraulic jacks*	
5	Essai de fonctionnement à pression maximum de 250 bars *Operating test at maximum pressure of 250 bars*	
6	Aspect général *General aspect*	
7	Outillage *Tools*	
8	Notice d'utilisation Ref. 42111002 *User's manual*	
9	Garantie moteur *Engine guarantee*	

Date de fabrication *Date of manufacturing :* .....

Fait à Raismes le *Drawn up in Raismes, the :* .....

Nom *Name :* .....

Signature *Signature :*

Références à rappeler en cas de réclamation
In case of complaint, please quote these references

N° de machine *Machine nbr :* .....

Pompe Type, N° *Pump Type :* ..... *N°* .....

S.A.V. - Assistance Technique
After-Sales Department
Tel. 03.27.22.26.03
Fax. 03.27.22.26.00

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Service Commercial
Commercial Department
Tel. 01.46.88.17.00 (France)
(33) 01.46.88.17.60 (Export)
Fax. 01.46.88.17.01

FICHE DE CONTROLE
A T E L I E R

CONTROL CARD
WORK 'S COPY

EBAVUREUSE HYDRAULIQUE TETE LARGE EPM3
A POMPE MANUELLE REF. 11334008

WIDE HYDRAULIC RAIL SHEARING MACHINE EPM3
WITH HAND PUMP REF. 11334008

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Fait à Raismes le *Drawn up in Raismes, the :* .....
Nom *Name :* .....
Signature *Signature :*

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In case of complaint, please quote these references

N° de machine *Machine nbr :* .....
Pompe Type, N° *Pump Type :* ..... *N°* .....

S.A.V. - Assistance Technique
After-Sales Department
Tel. 03.27.22.26.03
Fax. 03.27.22.26.00

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Commercial Department
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Fax. 01.46.88.17.01

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GROUPE DELACHAUX

CE

DECLARATION DE CONFORMITE

CONFORMITY CERTIFICATE

Le constructeur soussigné *(the undersigned manufacturer)*

RAILTECH INTERNATIONAL *(DIVISION MATERIEL)*
Z.I. DU BAS PRE
59590 RAISMES

Certifie que le matériel neuf désigné ci-après *(certify that the under described products)*

EBAVUREUSE HYDRAULIQUE
TÊTE LARGE EPM3 TYPE UK
A pompe manuelle
Référence 11334008*Reference 11334008*

WIDE HYDRAILIC RAIL WELD
***SHEARING MACHINE* EPM3 UK Type**
With hand pump

N° de machine *(machine number)* :

Est conforme *(comply with)*

- **AUX DISPOSITIONS REGLEMENTAIRES DEFINIES PAR L'ANNEXE 1 DE LA DIRECTIVE 98/37/CE**
(*THE INFORMATIONS STATED IN THE LEGAL DOCUMENTATION – ANNEXE 1 OF DIRECTIVES 98/37/CE)*

- Aux prescriptions de l'article R233-53 *(procédure d'auto certification)*
(The regulations of R233-53 article – self certification procedure)

Fait à Raismes, Février (*February))* 2007
Le Directeur Industriel,

D. BOURDON